No. 8700138

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The Ohio State University Research Foundation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'GR860'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 31st *day of* March *in the year of our Lord one thousand nine hundred and* eighty-nine.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Clayton Yeutter
Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S)
Ohio State University, Ohio Agricultural Research and Development Center

2. TEMPORARY DESIGNATION
OH260

3. VARIETY NAME
GR860

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
1680 Madison Ave.
Wooster, OH, 44691

5. PHONE *(Include area code)*
216-263-3700

FOR OFFICIAL USE ONLY

PVPO NUMBER
8700138

6. GENUS AND SPECIES NAME
Triticum aestivum L.

7. FAMILY NAME *(Botanical)*
Graminae

FILING
DATE: May 21, 1987
TIME: 9:45 ☑ A.M. ☐ P.M.

8. KIND NAME
Soft Red Winter Wheat

9. DATE OF DETERMINATION
9/6/85

FEES RECEIVED
AMOUNT FOR FILING: $ 1800 00
DATE: May 21, 1987
AMOUNT FOR CERTIFICATE: $ 200 00
DATE: Feb. 9, 1989

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Agricultural Experiment Station

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

12. DATE OF INCORPORATION

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. H. N. Lafever
Agronomy Department
Ohio State University, Ohio Agricultural Research & Development Center
Wooster, OH, 44691
PHONE *(Include area code)*: 216-263-3886

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)*
☒ Yes *(If "Yes," answer items 16 and 17 below)* ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ Foundation ☐ Registered ☒ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES ?
U.S., September, 1986 (Sold as Foundation generation seed to producers of Certified class seed)
☒ Yes *(If "Yes," give names of countries and dates)*
☐ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
Howard N. Lafever (Breeder)
DATE: 3/30/87

SIGNATURE OF APPLICANT
Kenneth W. Klem (Executive Director, The Ohio State University Research Foundation)
DATE: 5/18/87

FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

Exhibit A

Origin and Breeding History of the Variety

1. GR 860 (previously designated OH 260) originated at The Ohio State University, Ohio Agricultural Research and Development Center from the four way cross: C517/Logan//MoW8184/Va 66-54-10. The final cross was made in 1973 and designated 14273. GR 860 was first selected in 1976 as an F_3 plant and designated 14273-6. It was reselected in 1981 in the F_8 generation as described below.

2. Breeder seed of GR 860 consists of the progeny of 60 F_8 plants selected for uniformity in 1981 through 1984 and bulked following 1984 harvest to constitute Breeder seed. Breeder seed was seeded in fall, 1984. Foundation generation seed was produced in the 1985-86 crop season with the first distribution of Foundation generation seed made in the fall, 1986 to producers of the Certified class of seed (only two generations are allowed beyond Breeder seed.)

3. GR 860 appears to be very uniform and homozygous as observed in the field over the past six seasons. This would be expected in the progeny of phenotypically identical plants selected in the F_8 and reexamined for uniformity in the F_9 through F_{11} generations. (Originally 365 F_8 plants were selected as being identical, however, continued observation for uniformity in the F_9 through F_{11} generations resulted in the progeny of only 60 of these being bulked after harvest of the F_{11} generation in 1984.)

4. GR 860 appears to be very stable and true breeding as evidenced by agronomic and pathological examination of the F_8 through F_{11} generations in special purification and increase nurseries.

5. Variants observed during the development of the variety were few in number and of various, non-repeating types. In the 1986 Foundation generation production fields some off-types were observed including talls with awns or awnlets and normal height plants with awns or awnlets. The total of all types did not exceed .3%.

   Roguing of all observed off-types was performed four times in the Breeder seed increase of 1984-85 and three times in the Foundation generation increase of 1985-86.

   Criteria for selection during the multiplication and purification process in the F_9 through F_{11} generations allowed no variance from complete uniformity. If one off-type plant was observed in a 10' row, that plant was either rogued or the entire row dropped from further increase. If two or more off-type plants were observed within a row, the row was eliminated from further increase.

6. The variety was selected primarily as a special purpose variety for use in relay and double cropping systems. While yields of the variety are competitive with most other varieties in production in Ohio, its extreme earliness and extreme straw strength were the primary factors of consideration in the release decision. Additionally, selection for all other important agronomic, pathologic, and quality traits was exercised. The variety was tested in comparison to popular varieties in Ohio, namely, Becker, Hart, Titan, and Tyler.

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Exhibit B (Revised)

Novelty Statement and Botanical Description of the Variety

GR 860 is an awnless cultivar of soft red winter wheat with very short apical awnlets. It is extremely early in maturity and is a very short cultivar averaging 2.5 cm shorter then Adena, 15 cm shorter than Hart and Titan and 18 cm shorter than Tyler. GR 860 has exhibited excellent straw strength in Ohio and region-wide tests, exceeding all currently grown cultivars in straw strength. Winterhardiness of GR 860 is satisfactory, averaging 90% survival in 22 tests in Ohio over a 5-year period.

Test weight of GR 860 is high, averaging only .4 lb/bu below that of Hart, the highest test weight variety currently grown in Ohio. The yield record of GR 860 is competitive with other currently grown varieties, but is not exceptional.

The USDA Soft Wheat Quality Laboratory, Wooster, Ohio, in evaluations of samples of GR 860 over the past three years has found it to possess exceptionally good quality as a soft red winter wheat.

GR 860 possesses excellent field resistance to both leaf rust (Puccinia rcondita) and powdery mildew (Erysiphe graminis). It is also very resistant to wheat spindle streak mosaic virus (WSSM). GR 860 also possesses resistance to races GP, A, C, and F races of Hessian fly (Mayetoila destructor, Say) imparted by the H_3 gene.

GR 860 most closely resembles the variety Adena, but possesses several distinguishing characteristics compared to Adena. Foliage color of GR 860 at booting is medium green while that of Adena is distinctly blue-green. Auricles and anthers of Adena often exhibit anthocyanin pigmentation while none has been observed in GR 860. These two varieties also differ considerably in heading date with GR 860 normally heading about 4 days earlier than Adena (see Table 3, "Comparative performance of OH 260 and currently grown varieties in drill plot trials, Ohio, 1981-1985"). In addition, tip awns of the apically awnletted Adena are normally 2-3 cm in length while those of GR 860 are very short, being normally less than 5 mm in length. Hairs are often found on the auricles of Adena, while being absent on the auricles of GR 860. Phenol reaction of Adena is fawn while that of GR 860 is black.

Table 1. Comparative yields of OH 260 and currently grown varieties in drilled plot trials by years, Ohio.

Line or Variety	1981 3 tests	1982 3 tests	1983 7 tests	1984 6 tests	1985 6 tests	Avg. 22 tests	Avg. 25 tests
Adena	55.9	63.1	58.1	57.7	76.4	63.7	62.7
Becker	57.3	66.3	63.5	56.5	83.3	67.4	66.2
Cardinal	60.6	64.9	64.3	63.5	84.0	69.5	68.5
GR855	54.9	66.7	61.9	56.5	77.4	65.3	64.1
Hart	56.4	68.9	57.7	55.3	78.3[1]	64.2	63.3
Titan	58.0	62.3	60.1	51.3	77.9	62.9	62.3
Tyler	-	70.2	64.2	57.5	75.3	66.2	-
OH 256	54.1	68.0	60.3	58.0	85.2	67.5	65.9
OH 260	-	56.8	57.6	42.2	75.7	58.2	-
Arthur	48.3	61.8	-	-	-	-	-
Caldwell	58.6	60.9	-	-	-	-	-

[1] No 1985 data. Adjusted avg.'s based on relative performance in remaining years.

Table 2. Comparative yields of OH 260 and currently grown varieties in drilled plot trials by locations, Ohio.

Line or Variety	OARDC 1982-85	N.W. Br. 1982-85	W. Br. 1982-85	Mah. Co. 1983-85	S. Br. 1983-85	O.F.S. 1983	Vg. Cr. Br. 1983-85	Avg. (22 tests)
Adena	64.3	80.6	48.9	50.4	55.8	51.9	85.0	63.7
Becker	70.6	79.6	51.1	59.6	60.3	50.1	89.2	67.4
Cardinal	71.8	86.2	51.0	58.1	62.5	53.9	92.8	69.6
GR855	71.8	79.7	43.2	57.1	56.2	48.2	90.0	65.3
Hart[1]	66.0	77.7	47.7	56.3	55.7	52.6	85.9	64.2
Titan	64.4	71.4	45.8	59.0	58.6	51.4	84.3	62.9
Tyler	72.3	81.5	47.8	53.7	54.0	57.6	89.8	66.2
OH 256	68.9	82.1	49.8	59.8	58.9	50.3	92.0	67.5
OH 260	63.4	63.3	42.2	53.0	48.9	46.9	84.3	58.2

[1] No 1985 data. Adjusted avg.'s based on relative performance in remaining years.

Table 3. Comparative peformance of OH 260 and currently grown varieties in drill plot trials, Ohio, 1981-1985. (Average of 22 tests)

Line or Variety	Winter Survival (%)	Pl. Height (in.)	Date Headed (May)	Lodging (%)	Test Wt. (lb/bu)
Adena	97	32	25.2	6	58.2
Becker	95	31	26.5	1	56.9
Cardinal	97	36	26.9	2	58.4
GR 855	96	31	24.1	1	55.6
Hart[1]	96	37	25.1	2	58.9
Titan	92	37	29.1	11	57.8
Tyler	97	38	26.0	6	57.9
OH 256	95	32	23.0	0	57.5
OH 260	90	31	20.9	0	58.5

1 No 1985 data. Adjusted avg.'s based on relative performance in remaining years.

Table 4. Comparative insect, disease, aluminum tolerance, and quality ratings of OH 260 and currently grown varieties in miscellaneous Ohio tests.

Line or Variety	H.F. Res.	% Mildew 8 tests- 5 yrs.	WSSM[2] 5 tests- 4 yrs.	Leaf Rust 6 tests- 3 yrs.	Al. tolerance Yield ratio (% of Seneca) 3 yrs.	Al. tolerance Visual score[3] 5 yrs.	Quality (3 yrs.) Milling	Quality (3 yrs.) Baking
Adena	G.P.	37	1	19 MR-MS	74	5	A+	A
Becker	A,C	73	1	5 MR	58	4	B	A-
Cardinal	A,C	39	1	0 VR	98	4	A+	B+
GR 855	A,C	1	1	43 MS	82	5	C	B
Hart[1]	A,C	77	1	53 MS-S	40	7	C	D
Titan	A,C,	37	2	17 MR	71	4	C	D
Tyler	None	0	1	56 MS-S	--	4	A	D
OH 256	A,C	2	2	10 R-MR	66	5	B	C
OH 260	A,C	0	2	0 VR	47	8	A+	A+

1 No 1985 data. Adjusted avg.'s based on relative performance in remaining years.
2 0 = none to 9 = severe.
3 0 = very tolerant to 9 = very sensitive.

Table 5. Results of state-wide drilled plot yield trials including Ohio advanced wheat lines, 1986. (In order by average yield in 6 tests.)

Entry	Yield (bu/a) OARDC (Wooster)	N.Western Br. (Custar)	Western Br.(S. (Cha'ston)	Mahoning Co. Farm (Canfield)	Veg.Crops Br. (Fremont)	Southern Br. (Ripley)	Avg. Yield 6 Tests	Survival (%)	Avg. Date Headed (May)	Avg. Pl.Ht. (in.)	Avg. Lodg. %	Leaf Rust2	Avg. Test Wt. (lb/bu)
OH 257	59.6	78.0	61.2	55.8	67.6	43.4	60.9	96	21	35	6	1VR	56.5
OH 328	55.1	72.3	66.9	51.5	80.8	35.0	60.3	97	19	34	18	5MS	56.0
Tyler	58.5	67.5	57.6	56.0	72.0	32.9	57.4	93	19	37	13	20S	55.1
Becker	53.4	66.0	70.7	38.1	76.8	37.6	57.1	95	19	31	5	5MR	54.0
OH 285	54.4	68.3	65.4	47.2	62.4	42.9	56.8	94	18	36	5	1VR	56.3
OH 265	57.0	73.3	72.6	41.4	61.0	33.7	56.5	95	18	34	10	0VR	55.1
Cardinal	53.6	70.9	63.9	43.5	61.0	39.9	55.5	92	19	36	7	1R	55.9
Hart	48.3	66.3	62.6	43.0	65.1	43.8	54.9	95	17	34	7	40S	55.7
Titan	52.0	62.8	66.3	48.9	70.3	26.9	54.5	95	22	38	22	3MS	55.3
GR 860	51.4	63.9	60.4	38.8	64.4	46.4	54.2	94	14	31	2	0VR	56.6
Caldwell	51.0	69.4	64.9	41.0	63.6	34.4	54.1	95	15	34	18	0VR	54.2
OH 286	49.7	64.1	72.2	39.7	58.8	33.6	53.0	95	19	33	4	1VR	51.8
OH 2621	47.6	66.2	71.6	38.2	56.4	28.5	51.4	96	17	32	4	0VR	52.4
OH 2941	47.7	63.0	69.2	37.9	55.9	30.4	50.7	96	17	33	6	1VR	53.1
GR 863	48.9	69.8	58.4	38.1	54.0	33.2	50.4	94	15	29	2	1R	54.1
OH 3081	53.9	63.5	58.1	39.2	56.7	30.9	50.4	92	15	32	2	20MS	54.2
5% L.S.D.	3.0	7.3	7.5	5.3	10.5	3.6							

1 Denotes lines dropped from breeding program following 1986 season.
2 % - class (OARDC, Wooster, only).

FORM APPROVED: OMB NO. 0581-0055

EXHIBIT C
(Wheat)

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN AND SEED DIVISION
BELTSVILLE, MARYLAND 20785

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S): Ohio State University, Ohio Agricultural Research and Development Center

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*):
1680 Madison Ave.
Wooster, OH, 44691

FOR OFFICIAL USE ONLY

PVPO NUMBER: 8700138

VARIETY NAME OR TEMPORARY DESIGNATION: GR860

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

[2] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____

[1] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____

[2] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

[2][2][2] FIRST FLOWERING

[2][2][6] LAST FLOWERING

4. MATURITY (*50% Flowering*):

[0][2] NO. OF DAYS *EARLIER* THAN .....

[ ][ ] NO. OF DAYS *LATER* THAN .....

[1] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT (*From soil level to top of head*):

[0][7][9] CM. HIGH

[ ][ ] CM. TALLER THAN .....

[1][2] CM. SHORTER THAN .....

[1] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (*See reverse*):

[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:

[1] 1 = YELLOW 2 = PURPLE

8. STEM:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom: 1 = ABSENT 2 = PRESENT

[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

[1] Internodes: 1 = HOLLOW 2 = SOLID

[3 or 4 (some of each)] NO. OF NODES (*Originating from node above ground*)

[1][9] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[1] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*): _____

[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

[1][1] MM. LEAF WIDTH (*First leaf below flag leaf*)

[2][0] CM. LEAF LENGTH (*First leaf below flag leaf*):

8700138

11. HEAD:

[2] Density: 1 = LAX 2 = DENSE

[1] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER *(Specify)* _____

[2] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[2] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER *(Specify)*: _____

[7.0] CM. LENGTH [11] MM. WIDTH

12. GLUMES AT MATURITY:

[1] Length: 1 = SHORT *(CA. 7 mm.)* 2 = MEDIUM *(CA. 8 mm.)* 3 = LONG *(CA. 9 mm.)*

[3] Width: 1 = NARROW *(CA. 3 mm.)* 2 = MEDIUM *(CA. 3.5 mm.)* 3 = WIDE *(CA. 4 mm.)*

[4] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[1] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[3] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT (Trace?)

15. JUVENILE PLANT GROWTH HABIT:

[1] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[2] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[1] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[5] Phenol reaction *(See instructions)*: 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER *(Specify)* _____

[6.0] MM. LENGTH [3.4] MM. WIDTH [35] GM. PER 1000 SEEDS

12/14/87

17. SEED CREASE:

[1-2] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[1] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] STEM RUST *(Races)* _____ [2] LEAF RUST *(Races)* (field) [0] STRIPE RUST *(Races)* _____ [0] LOOSE SMUT

[2] POWDERY MILDEW [0] BUNT [2] OTHER *(Specify)* WSSM virus

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SAWFLY [0] APHID *(Bydv.)* [0] GREEN BUG [0] CEREAL LEAF BEETLE

[ ] OTHER *(Specify)* _____

HESSIAN FLY RACES: [2] GP [2] A [1] B [2] C [1] D [1] E [2] F [1] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Caldwell	Seed size	Ruler
Leaf size	GR855	Seed shape	? (Oval)
Leaf color	Arthur 71	Coleoptile elongation	Ruler
Leaf carriage	Becker	Seedling pigmentation	Adena

RECEIVED USDA, AMS MAY 21 1987 Plant Variety Protection Off.

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. *(See attachment.)*

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

9

Exhibit D

Additional description of the variety

Heads of GR 860 are held erect at maturity and tend to be slightly brittle at full maturity under dry conditions such that breakage at a rachis node will often occur if one exerts leverage on the head. This trait does not appear to ever cause shattering or head losses in combining operations or under high wind conditions.

Stem diameter of GR 860 appears to exceed most other currently grown cultivars in Ohio and stems are extremely stiff. This is the first variety ever noted to exhibit root lodging instead of stalk lodging in rare instances where lodging has been observed.

Coleoptile color is reported as purple (Exhibit C, item 13), however, purpling is not intense nor does it involve the entire coleoptile.

Seedling anthocyanin is reported as absent (Exhibit C, item 14), however, traces of purpling are occasionally observed on seedling plants.

Quality Evaluation of GR 860

(Data taken from U.S.D.A. Soft Wheat Quality Laboratory Reports)

Soft wheat quality tests of composite grain samples of 13 lines and varieties grown at 6 locations in Ohio in 1985 revealed GR 860 (Oh 260) received a combined quality score of 88.4. Comparative scores for Adena, Becker, Titan, and Tyler were 88.9, 100, 81.7, and 82.1, respectively.

In evaluations of composite samples of 14 lines and varieties grown at 6 locations in Ohio in 1984, GR 860 (OH 260) received a combined quality score of 93.6 while Adena, Becker (OH 234), Hart, Tyler, and Titan were scored at 100, 85, 78.3, 70.5, and 60.9, respectively.

Tests of composite samples of 16 lines and varieties grown at 7 locations in Ohio in 1983, GR 860 (OH 260) received a combined quality score of 100.3 while Adena, Becker (OH 234), Hart, Titan, and Tyler received combined scores of 100, 92, 89.7, 85.7, and 79.9, respectively.

No 1986 quality data is yet available.

These and other tests reveal that the baking and milling quality of GR 860 is excellent as a soft red winter wheat.

(See attached Tables 1-3)

Table 1. Wheat, milling, and flour analytical and baking data, and quality scores. Drill plot entries from Wooster, Ohio, 1985 crop.

ADVANCED NURSERY EVALUATION

FOR SOFT WHEAT MILLING AND BAKING QUALITY

WOOSTER, OHIO

STANDARD = 85789, BECKER

LAB NO.	ENTRY	MILLING QUALITY SCORE	BAKING QUALITY SCORE	COMB. QUALITY SCORE	MICRO TEST WT KG/HL	SOFTNESS EQUIV.	FLOUR YIELD	ASH	FLOUR PROTEIN	MICRO AWRC	COOKIE DIAMETER	TOP GRAIN
****	STANDARD	100 A	100 A	100 A	77.3	66.8	76.2	.38	6.8	52.4	17.7	7
****	BENCHMARK	88.7 D	95.1 B	88.7 D	78.6	61.4*	73.5*	.35	7.9 *	52.9	18.2	7
788	ADENA	104 A	88.9 D	88.9 D	79	63.6	77.3	.35	7.7 *	52.7	17.5	3*
789	BECKER	100 A	100 A	100 A	77.4	66.8	76.2	.38	6.8	52.4	17.7	7
790	CARDINAL	104.4 A	101.9 A	101.9 A	80.1	62.2*	78.2	.33	7.3	51.6	18.0	6
791	TITAN	100 A	81.7 E	81.7 E	78.9	65.7	75.9	.33	7.6 *	53.8	17.2*	6
792	TYLER	102.1 A	82.1 E	82.1 E	79.3	64	76.7	.33	7.3	52.9	17.1*	4*
793	OH 256	96.8 B	78.2 F	78.2 F	79.5	63.4	75.3*	.3	8.4 *	54.5*	17.4*	5
794	OH 257	101.8 A	71.5 F	71.5 F	80.5	61.2*	77	.32	8.4 *	55.8*	17.3*	6
795	OH 260	104.9 A	88.4 D	88.4 D	81.3	63 *	78	.34	8.8 *	52.1	17.6	5
796	OH 262	99.5 B	96.3 B	96.3 B	79.7	68.2	75.3*	.34	7.7 *	54 *	17.9	6
797	OH 265	102.2 A	86.5 D	86.5 D	81	63.8	76.7	.33	8.1 *	54.4*	17.7	7
798	OH 285	104.3 A	92.9 C	92.9 C	80.5	61.9*	78.4	.33	8.5 *	52.2	17.8	7
799	OH 286	102.6 A	93.2 C	93.2 C	79.1	69	76.1	.34	7.7 *	53.6	17.7	7
800	OH 308	96 B	84.8 E	84.8 E	80.6	64.8	75.4	.4	7.7 *	53.8	17.4*	5

LAB NO.	ENTRY	BREAK FLOUR YIELD	EXT.	E.S.I.
****	STANDARD	40.4	76.1	8.2
****	BENCHMARK	35.8*	75.6*	11.7*
788	ADENA	37.7	79.1	6.8
789	BECKER	40.4	78.1	8.2
790	CARDINAL	36.5*	76.9	5.7
791	TITAN	39.5	77.8	8.6
792	TYLER	38	78.5	7.6
793	OH 256	37.5	77.3*	9.4 *
794	OH 257	35.7*	78.8	7.2
795	OH 260	37.2*	79.7	5.9
796	OH 262	41.6	77.3*	9.4 *
797	OH 265	37.9	78.5	7.6
798	OH 285	36.3*	80.1	5.4
799	OH 286	42.3	78	8.4
800	OH 308	38.7	77.3	9.2

Table 2. Wheat, milling, and flour analytical and baking data, and quality scores. Drill plot entries from Wooster, Ohio, 1984 crop.

WHEAT AND MILLING DATA

LAB NO.	ENTRY	MILLING QUALITY SCORE	BAKING QUALITY SCORE	COMBINED QUALITY SCORE	TEST WT.	BREAK FLOUR YIELD	ST.GR. FLOUR YIELD	RED. PASSES	FRIABILITY	E.S.I.	MILLABILITY
***	STANDARD	100 A	100 A	100 A	62.7	29.8	76.4	7	28.4	11.1	106.9
***	BENCHMARK	105.9A	109.A	105.A	61.6*	35.6	76.3	7	28 *	10.4	114.1
057	ADENA	100 A	100 A	100 A	62.7	29.8	76.4	7	28.4	11.1	106.9
058	HART	92.8 C	78.3F	78.3F	62.6	32	74.4Q	7	27 Q	12.9*	93.4 *
059	TYLER	100 A	70.5F	70.5F	62.2	32.4	76.2	7	28.5	11.4	105.7
060	TITAN	93.6 C	60.9F	60.9F	62.7	33.6	74.8*	7	26.8Q	12.5*	93.6 *
061	OH 234	94.5 C	85 D	85 D	62.3	34	75.9	7	27.7Q	11.5	95.3 *
062	OH 235	95 B	98.2B	95 B	61.6*	30.5	76.1	7	28.2	10.8	99.1
063	OH244	106.5A	103.A	103.A	63.1	30.6	77.6	7	29.2	9.6	116.9
064	OH 256	93.4 C	78.4F	78.4F	62.2	32	75.4*	7	27.3Q	12	94.8 *
065	OH 257	97.2 B	69.9F	69.9F	63.1	26.8Q	75.9	7	27.7Q	11.6	103.8
066	OH 260	109.7A	93.6C	93.6C	64.8	31.9	77.9	7	29.3	9.5	120.2
067	OH 262	98.1 B	95.1B	95.1B	61.7*	38	75.6	7	28.6	11.8	99.3
068	OH 265	100.8A	89.5D	89.5D	63.1	35.8	76.3	7	29	11.4	103.8
069	OH 285	107.2A	113.A	107.A	63.4	29	77.5	7	29.8	9.3	118.9
070	OH 286	101.2A	97.2B	97.2B	61.8*	37.2	76.6	7	29.3	11	104.9

STRAIGHT-GRADE FLOUR

LAB NO.	FLOUR PROTEIN %	ASH %	MICRO AWRC %	COOKIE DIAMETER CM.	TOP GRAIN
***	9.74	.39	48.4	17.89	4
***	8.9	.35	51.3*	18.35	7
057	9.74	.39	48.4	17.89	4
058	10.9Q	.38	50.3*	17.56*	1*
059	9.01	.39	52.6Q	17.39Q	2*
060	10	.39	51.6Q	17.16Q	1*
061	9.18	.43*	49.7	17.57*	3
062	10.2	.43*	48.3	17.87	4
063	9.4	.39	47.9	17.91	4
064	10.2	.41	50.7*	17.64*	2*
065	10.4*	.38	50.4*	17.33Q	3
066	11.2Q	.38	48.2	17.82	3
067	9.38	.41	51 *	17.91	5
068	9.9	.41	51 *	17.81	3
069	10.1	.39	46.9	18.15	5
070	9.93	.42*	49.9	17.93	3

Table 3. Wheat, milling, and flour analytical and baking data, and quality scores. Drill plot entries from Wooster, Ohio, 1983 crop.

LAB NO.	ENTRY	MILLING QUALITY SCORE	BAKING QUALITY SCORE	COMBINED QUALITY SCORE	MILLAB. SCORE	TEST WT. KG/HL.	WHEAT PROT. %	WHEAT ASH %	PSI %	ESI %	RED PASS	BREAK FLOUR YIELD	FLOUR YIELD	FRIAB %
107 10	OH260	103.8A	100.3A	100.3A	117.8	78.9	10.4*	1.6	38.6	9.1	8	31.9*	76.8	28.1
***	STANDARD	100 A	100 A	100 A	103.7	77	9.6	1.53	40.2	11.7	8	33.9	75.4	27.1
096 3	ADENA	100 A	100 A	100 A	103.7	77	9.6	1.53	40.2	11.7	8	33.9	75.4	27.1
110 13	OH285	105 A	98.3 B	98.3 B	119.1	78.3	9.8	1.62	37.4*	9	8	30.7*	76.6	28.1
103 2	OH244	107.6A	97.3 B	97.3 B	117.8	77.5	9.3	1.53	38.7	9.1	8	34.1	77	28.5
***	BENCHMARK	104.8A	96.2 B	96.2 B	112.5	79.3	9.6	1.45	39.2	10.4	8	35	76.6	27.6
109 12	OH265	94.5 C	94.2 C	94.2 C	90.5 *	77.3	9.2	1.69	44.1	12.1	8	38.3	74.5*	26.3
111 15	OH286	92.5 C	93 C	92.5 C	87.9 *	76.3	9.3	1.69	45.2	12.3	8	39	74.4*	26.3
101 4	OH234	92 C	92.4 C	92 C	87.1 *	76.3	9.1	1.67	46	12.4	9	38.4	74.5*	25.3
105 8	OH256	90.5 C	93 C	90.5 C	91 *	76.9	10	1.67	39.4	12.1	8	34.2	73.60	25.7
102 6	OH235	93.2 C	89.8 D	89.8 D	95.7	76.5	9.7	1.64	38.2*	11.6	8	33.7	74.9	26.6
097 11	HART	89.7 D	90.5 C	89.7 D	91.4 *	76.2*	10.3*	1.65	40	12.7	8	34.6	73.50	25.9
100 1	OH220	94.3 C	88.2 D	88.2 D	96.4	77.3	10.3*	1.64	46.9	11.8	9	35.4	75.4	26.4
108 16	OH262	87.1 D	96.9 B	87.1 D	80.2 D	75.7*	9.5	1.65	44.7	13.6*	9	39.3	73.8*	25.4
098 5	TITAN	91.8 C	85.7 D	85.7 D	90.6 *	76.7	9.6	1.65	39.7	12.9*	8	36.6	73.9*	25.9
099 14	TYLER	102.7A	79.9 F	79.9 F	108.2	77	9	1.5	39.1	11.6	8	34.8	75.6	27.8
104 7	OH255	78.8 F	87.1 D	78.8 F	79.1 D	78.2	10.80	1.71*	36.40	13.8*	9	31.7*	72.70	24
106 9	OH257	86.8 D	74 F	74 F	96.9	78.3	10.80	1.74*	33.50	12	8	29.80	75.2	26.4

STRAIGHT-GRADE FLOUR

LAB NO.	PROT. %	ASH %	ADJ.** MACM. VISC.	MICRO AMRC %	COOKIE DIAM. CM.	TOP GRAIN
107	9.1	.36	67	47.7	18.67	7
***	7.8	.36	91	48.8	18.31	7
096	7.8	.36	91	48.8	18.31	7
110	8.5	.35	55	49.1	18.7	7
103	7.8	.37	10	48.5	18.21	6
***	8.5	.36	85	50.6*	18.57	3*
109	7.7	.4 0	97	51.5*	18.25	6
111	7.8	.410	11	51.4*	18.17	6
101	7.4	.4 0	82	51.5*	18.12	6
105	8.6	.37	97	50.1	18.32	6
102	8.1	.39*	59	49.4	18.06*	7
097	8.6	.36	78	50.7*	18.22	6
100	9	.39*	91	52.30	18.26	5
108	7.8	.410	10	50.6*	18.25	6
098	8.4	.37	84	51.3*	18.08	6
099	7.6	.35	13	50.8*	17.690	5
104	9.3	.37	73	49.6	18.22	6
106	9	.38*	70	50.4*	17.85*	6

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Exhibit E

Statement of the Basis of Applicant's Ownership

The originating four-way cross, early line evaluation, selection, reselection, purification, testing, and final multiplication were all performed by the applicant breeder (Dr. H. N. Lafever) or his technical assistants on the property of The Ohio State University, Ohio Agricultural Research and Development Center utilizing funds provided for such research. Ownership of the variety shall remain with The Ohio State University, Ohio Agricultural Research and Development Center, however, through The Ohio State University Research Foundation, exclusive rights to produce, promote, and market this variety have been granted, by contract, to the Agricultural Genetic Research Association.